UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2003/00566

September 8, 2003

Mr. Fred Patron
U.S. Department of Transportation
Federal Highway Administration
The Equitable Center, Suite 100
530 Center Street NE
Salem, OR 97301

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation on the Effects of a Bridge Replacement Project and a Roughened Chute on Jackass Creek, Tributary to the Rogue River, Willamette River Basin, Polk County, Oregon.

Dear Mr. Patron:

Enclosed is a biological opinion (Opinion) pursuant to section 7 of the Endangered Species Act (ESA) prepared by NOAA's National Marine Fisheries Service (NOAA Fisheries), on the effects of the proposed Bridge Replacement Project and a Roughened Chute Project in Polk County, Oregon. In this Opinion, NOAA Fisheries concludes that the proposed action is not likely to jeopardize the continued existence of ESA-listed Upper Willamette River (UWR) chinook salmon (*Oncorhynchus tshawytscha*) and UWR steelhead (*O. mykiss*). As required by section 7 of the ESA, NOAA Fisheries included reasonable and prudent measures with non-discretionary terms and conditions that NOAA Fisheries believes are necessary to minimize the impact of incidental take associated with this action.

This document also serves as consultation on essential fish habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations at 50 CFR Part 600.

If you have any questions regarding this consultation, please contact Tom Loynes of my staff in the Oregon Habitat Branch at 503.231.6892.

Sincerely,

for Michael R Crouse

D. Robert Lohn
Regional Administrator

Endangered Species Act - Section 7 Consultation
Biological Opinion

&

Magnuson-Stevens Fishery Conservation and Management Act
Essential Fish Habitat Consultation

Jackass Creek Bridge Replacement and Roughened Chute Projects,
Oregon Highway 18 - Milepoint 19.16,
Polk County, Oregon

Agency:	Federal Highway Administration
Consultation Conducted By:	National Marine Fisheries Service, Northwest Region
Date Issued:	September 8, 2003
Issued by:	For Michael R Course D. Robert Lohn Regional Administrator
Refer to:	**2003/00566**

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1. ENDANGERED SPECIES ACT

1.1 Background

On May 12 2003, NOAA's National Marine Fisheries Service (NOAA Fisheries) received a request from the Federal Highway Administration (FHWA) for Endangered Species Act (ESA) section 7 formal consultation for the Jackass Creek Bridge Replacement Project and Roughened Chute Project. Jackass Creek is a tributary of the Rogue River in Polk County. The project site is on Highway 18 near milepost 19.16. The proposed action is the removal of barrier culvert and replacement with a existing bridge spanning Jackass Creek. The project applicant, the Oregon Department of Transportation (ODOT), proposes to replace an impassable culvert with a fully spanning bridge. FHWA funds would partially finance this project and constitute the Federal nexus. ODOT is responsible for the project design and management.

The effects determination was made using the methods described in *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NOAA Fisheries 1996). FHWA determined that the proposed action was likely to adversely affect UWR steelhead. The UWR steelhead was listed as threatened under the ESA on March 25, 1999 (64 FR 14517). The project site is also within the range of UWR spring chinook salmon, which were listed as threatened under the ESA on March 24, 1999 (64 FR 14308).

This biological opinion (Opinion) is based on the information presented in the biological assessment (BA), site visits, meetings with ODOT biologists and consultants, and the result of the consultation process. The consultation process involved correspondence and communications to obtain additional information and clarify information in the BA. As a result, a BA was produced that tiered off of the SLOPES Opinion (NOAA Fisheries 2002 http://www.nwr.noaa.gov/1publcat/bo/2002/ohb2001-0016-pec_06-14-2002.pdf). The roughened chute portion of this project and some adaptive management elements are the only actions that would not fit under SLOPES. The BA includes conservation measures and BMP's that would cover effects matching the SLOPES terms and conditions.

The objective of this Opinion is to determine whether the action to replace the Jackass Creek culvert with a bridge is likely to jeopardize the continued existence of the UWR chinook salmon or UWR steelhead.

1.2 Proposed Actions

The project site is at mile point 19.16 on the Salmon River Highway (Highway 18) in Polk County, Oregon. The stream crossing is a few miles west of the community of Grande Ronde and spans Jackass Creek approximately 0.56 km upstream of the confluence with the Rogue River. The Rogue River enters the South Yamhill River less than 3.7 km from the confluence with Jackass Creek.

The purpose of this project is stream restoration through replacement of an impassable culvert with a full span bridge and a more naturally functioning and fish passable channel to restore fish

passage into the upper reaches of Jackass Creek. The Jackass Creek culvert under Highway 18 is currently impassable to fish and the Oregon Department of Fish and Wildlife (ODFW) has classified the Jackass Creek crossing culvert as a priority to enhance for fish passage.

The action area begins approximately 45 m upstream and extends 150 m downstream. The action area also extends 200 m to the east and west of the crossing (detour route).

Bridge Construction

The proposed bridge is a 12.5 m long, single-span bridge comprised of four precast prestressed (PCPS) concrete slabs supported by steel pipe piles. The approximately 12-m wide deck will be cast-in-place (CIP) concrete. A 6.2-m long reinforced concrete end-panel will transition the bridge deck to the roadway. The proposed bridge will maintain the existing two slightly widened travel lanes.

An approximately 300-m long detour route with two 3.6-m lanes and 1.8-m shoulders will be constructed north of the highway. The detour will route traffic from the work area during culvert removal, channel reconstruction, and bridge construction. Detouring traffic off of the main highway will allow construction staging to occur from the existing roadway. This will allow excavated materials and construction equipment to be stored, maintained, and refueled along the existing road network, without clearing vegetation or contaminating soils. The detour will include a 16-m long, pile-supported, single-span bridge over Jackass Creek. The steel pipe piles will be driven and provide support for the temporary detour bridge and will be removed after construction. The bridge will span from bank to bank, including the entire existing and proposed channels to the OHW elevation.

Roughened Chute Installation

The proposed streambed was designed to simulate the existing natural streambed found in the watershed. Habitat structures, including large rocks and root wads, have been incorporated into the channel design to establish low flow channels and backwater areas.

The slope of the 40-m long reconstructed channel will average 7.8%; much steeper than immediately above and below the project area. This steep cascade is necessary to make up the height difference between the upstream and downstream channel elevations. Without this steep cascade, a head cut would be released upstream causing substantial change to the stream, fish habitat, and adjacent riparian zone. The reconstructed channel will have a varying width, but the channel bottom of the ordinary high water elevation (OHW) will be approximately 5-m wide. The total new channel area below the OHW is approximately 200 m^2.

To stabilize the reconstructed stream channel under the bridge, a 1.2-m thick blanket of metric class 1000 riprap will line the channel bottom from 2 m upstream to 2 m downstream of the bridge and from bridge abutment to bridge abutment (approximately 12 m). An approximately 1-m thick blanket of metric class 350 riprap will be placed under the 5-m wide streambed in the sections above and below the bridge crossing. The metric class 350 riprap will be installed up to the 2-year flood elevation. Approximately 0.3 m of natural streambed materials will cover the

5-m wide streambed throughout the reconstructed channel section. The roughened chute will extend from the bridge downstream 40 m.

The reconstructed stream channel will be moved approximately 5 m to the west of the existing culvert, on an alignment that removes sharp bends in the stream above and below the existing crossing. Circa 1933 right-of-way maps suggest that the channel may have been realigned during construction of the original culvert. The original alignment may have been to the west, closer to the proposed alignment. If ODOT maintained the existing alignment, the stream would curve under the bridge, resulting in high hydraulic pressure at the outside bend of the channel beside the bridge bent. Maintaining the existing alignment would also require a longer bridge.

The side slopes of the reconstructed streambed will have a 1V:5H ratio. The streambank slopes will vary, with a 1V:1.5H ratio under the bridge crossing and between a 1V:1.5H to 1V:5H ratio outside of bridge crossing. The bridge will have approximately 2 m of clearance between the thalweg and bridge deck.

The disturbed riparian areas will be planted with a diverse assemblage of native trees, shrubs, and herbaceous plants. Tree species will include red alder and Douglas-fir (*Pseudotsuga menziezii*). Shrub species will include vine maple (*Acer circinatum*), red-osier dogwood (*Cornus stolonifera*), Nutka's rose (*Rosa nutkana*), and willows, such as Hooker's willow (*Salix hookeriana*) and Scouler's willow (*Salix scouleriana*). Herbaceous species will include sedges (*Carex spp*.), rushes (*Juncus spp.*), and bulrush (*Scirpus spp.*). The reconstructed banks will be planted with members of the shrub layer in soil pockets installed in the banks.

Large wood pieces and large ballast rocks have been incorporated into the design to deflect flows from the streambank in two places and provide hydraulic roughness and velocity resting areas for fish. The large wood pieces will be conifers between 5 to 6 m long. The large ballast rocks will be at least 3,000 to 4,000 kg and approximately 2.0 m^3 in size. At least two large wood pieces with root wads attached will be included at each deflection point. Large ballast rocks will anchor the large wood pieces at the deflection points. One deflection point will be on the eastern bank immediately upstream of the bridge, at the uppermost terminus of the reconstructed channel. The other deflection point will be on the eastern bank at the downstream terminus of the reconstructed channel.

The streambed material was specified to ensure stream flow is maintained above the channel bottom through the reconstructed channel. Blending and water compaction are designed to fill in voids within the streambed material. Blending simulates the geologic structure and hydrologic function of a natural streambed by mixing materials of varying sizes to reduce voids and eliminate homogenous pockets of material. The material excavated for the reconstructed channel will be used on top of the riprap as natural channel material.

Water compaction of the streambed material is accomplished by hosing down the mixed materials and forcing fines into the remaining voids of the riprap. The goal of water compaction is to add enough water to wash the fines into the voids, but not enough to force loss of fines

downstream. The final mix of materials should suspend water for a brief period of time. Water compaction will be accepted based on visual inspection by the Engineer.

Adaptive Management for the Roughened Chute

This treatment is experimental and ODOT may need to make repairs or modifications to maintain adequate fish passage and beneficial habitat features. Possible corrective actions within the next five years include: (1) Replacement plantings along the banks and within the riparian area;
(2) stabilizing scour critical banks or failing deflection points; and (3) replacing poorly functioning habitat structures.

Most of these activities will include disturbance within the ordinary high water of Jackass Creek. These activities would be conducted within limitations, including: (1) ODOT Environmental Services will provide instruction including BMP's for the performance of this work; (2) ensure either an ODOT Geo-Hydro Engineer, Environmental Staff, or ODFW-ODOT Liaison is present onsite during adaptive management activities; (3) mechanized equipment will not be allowed to enter below the ordinary high water elevation of Jackass Creek during these activities; (4) all work below the ordinary high water elevation of Jackass Creek will be conducted during the ODFW defined in-water work period, unless the activities would fit under the exceptions identified in the ODOT Emergency and Urgency Maintenance of Cut or Fill Slope Failures (2002); (5) all remediation work will occur within the original project footprint; and (6) all subsequent impacts to riparian vegetation during adaptive management activities will be mitigated at a 2:1 replacement ratio.

New Impervious Surface and Stormwater Treatment

Stormwater runoff associated with the existing Jackass Creek roadway crossing is currently discharged directly from the road to the creek without treatment. The proposed bridge deck will be curbed to route stormwater off of the bridge into the vegetated riparian area. Stormwater associated with the roadway will sheet-flow off the roadway into vegetated ditches before entering the riparian area beside Jackass Creek. These ditches will be designed to minimize, retain, treat, and infiltrate stormwater onsite to the maximum extent feasible without causing flooding or erosion. ODOT has designed treatment facilities applicable to site conditions to remove debris, nutrients, sediments, and other pollutants likely to be present in the stormwater runoff.

Work Area Isolation

The proposed work area will be isolated and dewatered before initiating culvert removal and channel modification activities. Accomplishing the proposed work in dry conditions will reduce potential impacts to downstream water quality and minimize direct harm to fish. Water will be diverted from the work areas for approximately the entire in-water work period. All water management plans with the set criteria below, will be designed by the contractor and approved by ODOT prior to implementation.

The diversion pipe will route water collected from an upstream sandbag dam back to the channel downstream of the work area. Flow downstream of the work area will not drop below 50% of upstream flow. The temporary water management pipe will have a minimum diameter of 75 centimeters (cm). The diversion pipe will be routed to the west of the existing culvert and placed under the highway, near of the proposed bridge end panel.

A gravity-fed system will be used to transport water around the work area. Pumps may be required when the diversion pipe is initially watered. The gravity-fed system is generally preferred because it will allow downstream fish passage through the work area and requires less maintenance and monitoring. When the pumps are required, they will be monitored during the entire period of use and the intake will be screened following NOAA Fisheries guidelines. An additional operational backup pump will be available onsite for rapid deployment.

Work area isolation, dewatering, and re-watering activities will be monitored by trained and experienced biologist(s). Fish salvage and handling will be performed by a trained and experienced biologist. Monitoring of the pump system and the gravity-fed system will be accomplished by the contractor.

1.3 Biological Information

The listing status and biological information for UWR steelhead are described in Busby *et al*. (1996) and NOAA Fisheries (1997). The listing status and biological information for UWR chinook salmon are described in Myers *et al*. (1998).

Freshwater habitat includes all waterways, substrates, and areas beside a stream that provide shade, sediment, nutrient or chemical regulation, streambank stability, and input of large wood or organic matter below longstanding, natural impassable barriers (*i.e.*, natural waterfalls in existence for at least several hundred years) and several dams that block access to former UWR steelhead and UWR chinook salmon habitat.

UWR steelhead are a late run winter steelhead. Hatchery fish are widespread throughout the region. Both summer steelhead and early-run winter steelhead have been introduced to the basin and escape to spawn naturally in substantial numbers. Winter steelhead are in steep decline after exhibiting wildly fluctuating abundance. Recent average adult abundance has been estimated at 3,000 fish. Natural fish adult returns in 1995 were the lowest in 30 years. Declines have been recorded in almost all natural populations. Natural steelhead integrity is at risk from introduced summer steelhead.

Upstream spawning migration of winter steelhead primarily begins in March and April, and peaks from April through June. Adult steelhead use the Willamette River as a migratory corridor and spawn in the upper reaches. Parr emerge from the gravel in late spring/early summer, rear in the stream for one or two years, and outmigrate during spring run-off as smolts. UWR steelhead are not known to inhabit Jackass Creek, however, the potential exists.

Adult spring chinook salmon require deep pools within reasonable proximity to spawning areas where they hold and mature for several months between migration and spawning. Preferred spawning and rearing areas have a low gradient, generally less than 3%, but adults often ascend much higher gradient reaches to find desirable spawning areas. UWR chinook use the lower Yamhill River primarily for rearing and migration well downstream of the project (StreamNet 2003)

1.4 Evaluating Proposed Action

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations).

Subsequently, NOAA Fisheries evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NOAA Fisheries must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action, (2) the environmental baseline, and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmon's life stages that occur beyond the action area. If NOAA Fisheries finds that the action is likely to jeopardize the listed or proposed species, NOAA Fisheries must identify reasonable and prudent alternatives for the action.

For the proposed action, NOAA Fisheries' jeopardy analysis considers direct or indirect mortality of fish attributable to the action.

1.4.1 Biological Requirements

The first step NOAA Fisheries uses when applying the ESA section 7(a)(2) to listed salmonids is to define the species' biological requirements that are most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list UWR steelhead and UWR chinook salmon for ESA protection and also considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for UWR steelhead and UWR chinook salmon to survive and recover to naturally-reproducing population levels at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful adult and juvenile migration, spawning and rearing. UWR steelhead and UWR chinook salmon survival in the wild depends on the proper functioning of

certain ecosystem processes, including habitat formation and maintenance. Restoring functional habitats depends largely on allowing natural processes to increase their ecological function, while at the same time removing adverse impacts of current practices. In conducting analyses of habitat-altering actions, NOAA Fisheries defines the biological requirements in terms of a concept called Properly Functioning Condition (PFC) and applies a "habitat approach" to its analysis (NOAA Fisheries 1999). The current status of the UWR steelhead and UWR chinook salmon, based upon their risk of extinction, has not significantly improved since the species were listed.

1.4.2 Environmental Baseline

The defined action area is the area that is directly and indirectly affected by the action. The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect affects may occur throughout the watershed where actions described in this Opinion lead to additional activities or affect ecological functions contributing to stream degradation. As such, the action area for the proposed activities include the immediate watershed containing the channel modification and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term. For the purposes of this Opinion, the action area is defined as the streambed and streambank of Jackass Creek extending upstream 45 m to the edge of disturbance, and downstream approximately 150 m below the bridge. Other reaches of Jackass Creek or the Rogue River watershed are not expected to be directly or indirectly impacted.

Jackass Creek is a tributary of the Rogue River. The project is at the Jackass Creek culvert on the Salmon River Highway (Highway 18) at MP 19.16 and enters the Rogue River just a few miles west of the community of Grande Ronde. Flows, substrates, and the gradient within the project action area are typical of lowland streams along the east slope of the Oregon Coast Range.

The predominant land use within the project area is agriculture and rural residential. The majority of the floodplain has been cleared and converted to farmland or pastures. Within the action area, minimal native riparian vegetation exists. Within the immediate vicinity of the culvert, a very thin buffer of riparian vegetation exists on both banks of the creek upstream of the culvert. Riparian vegetation downstream of the bridge is sparse and limited to pasture grasses and sporadic communities of Himalayan blackberry (*Rubus discolor*)and reed canarygrass (*Phalaris arundinacea*). The dominant vegetation within the action area includes Himalayan blackberry and red alders (*Alnus rubra*)

Based on the best available information on the current range-wide status of UWR steelhead and UWR chinook salmon; the population status, trends, and genetics; and the poor environmental baseline conditions within the action area, NOAA Fisheries concludes that the biological requirements of the identified ESU within the action area are not currently being met. River basins have degraded habitat resulting from agricultural and forestry practices, water diversions,

and urbanization. Actions that do not maintain or restore properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of UWR steelhead.

1.5 Analysis of Effects

1.5.1 Effects of Proposed Action

This effects analysis addresses effects to listed UWR steelhead and UWR chinook salmon that may result from this project given the conservation measures to be employed. These potential effects include reductions in water quality, changes in stream channel conditions and hydrology, and direct harm to fish.

Water Quality

The quality of the water that fish encounter on their migration is extremely important, and can determine such things as feeding and breeding success rates, disease levels, growth rates, and predation rates. Major elements of water quality critical to salmon are turbidity, suspended sediment, chemical contamination, and temperature. Turbidity and fine sediments can reduce prey detection, alter trophic levels, reduce substrate oxygen, smother redds, and damage gills, as well as cause other deleterious effects. Chemical contamination can reduce fecundity and fertility, increase disease, shift biotic communities, and reduce the overall health of migrating salmon. Temperature affects metabolic rates, resistance to disease, oxygen concentrations in the water, and other vital factors.

The effects of suspended sediment and turbidity on fish, as reported in the literature, range from beneficial to detrimental. Elevated total suspended solids (TSS) conditions have been reported to enhance cover conditions, reduce piscivorus fish/bird predation rates, and improve survival. Elevated TSS conditions have also been reported to cause physiological stress, reduce growth, and adversely affect survival. Of key importance in considering the detrimental effects of TSS on fish are the frequency and the duration of the exposure, not just the TSS concentration.

Behavioral avoidance of turbid waters may be one of the most important effects of suspended sediments (DeVore *et al*. 1980, Birtwell *et al*. 1984, Scannell 1988). Salmonids have been observed to move laterally and downstream to avoid turbid plumes (Sigler *et al*. 1984, Lloyd 1987, Scannell 1988, Servizi and Martens 1991). Juvenile salmonids avoid streams that are chronically turbid, such as glacial streams or those disturbed by human activities, unless the fish need to traverse these streams along migration routes (Lloyd *et al*. 1987). Turbidity resulting from the proposed project will be confined to the construction and removal of the temporary structures, the removal of the box culvert, post-project remediation, and the construction within the stream channel. The turbidity resulting from this in-water work will be isolated and limited in space and time.

Increased roadway area provides additional opportunities to collect and deliver lubricants, coolants and other pollutants released from automobiles.

Increases in suspended sediment and turbidity would be short-term and limited to activities associated with removal of the piles and excavation of the toe trench. Vegetation removal may reduce shade minimally allowing solar penetration into the stream channel, but NOAA Fisheries feels this will have minor temperature increases given the small area affected of Jackass Creek. An erosion and sediment control plan and pollution control plan specifying containment measures would be developed to minimize water quality effects**.**

Stream Channel Conditions

Channel conditions and dynamics are influenced by a number of processes. Changes in impervious surface area and riprap are two common elements of transportation projects that directly affect channel condition and dynamics. Increases in erosion can lead to simplification and channelization of the stream, while the reduced groundwater storage can alter the peak and base flows of the drainage. At this low position in the watershed these effects should be minor.

The in-water work proposed will also alter the substrate in the stream around the existing culvert. The substrate will be disturbed when the culvert is removed. In the long term, the substrate will become more stable and even, due to the elimination of the constriction in the channel. The streambank and channel will be temporarily disturbed by placement of LWD and ballast rocks, actions that will be completed in the dry.

Stream Basin Hydrology

The proposed bridge would have a hydraulic opening greater than the existing culvert, and the creek would not be constrained due to the single-span design. Therefore, no scour or backwater effects are expected. Additional impervious surfaces can alter the water quality, hydrology, and habitat complexity of a system. The reduction in infiltration capacity can result in an increase in peak and duration of flows during storm events, increased erosion, and reduced groundwater storage. This project will treat the stormwater by routing it to vegetated ditches before flowing through the riparian vegetation.

Channel Isolation

Individual fish may be injured or killed during structure removal and construction activities. The probability of injury or death will be reduced by completion of these activities during the preferred in-water work period, when fewer fish are likely to be present. During channel modification activities, passage would be blocked by the diversion and fish would be removed from the work area and moved an area downstream with adequate cover and water quality. The resulting lack of upstream fish passage during construction would be the same condition that exists now during low flow conditions.

Individual fish may also be injured or killed as a result of fish removal from the work area and removal of the existing bridge deck and bent. The probability of this is low because these activities would be conducted using containment measures, the work area would be isolated using a sandbag diversion, and silt fencing (a secondary measure) would be employed to minimize turbidity effects. Fish salvage would occur within the isolated work area. Mortality

and/or injury to fish species may occur during handling. Delayed mortality may occur due to stress related to handling.

Although downstream fish passage may be temporarily impaired by isolating the channel in Jackass Creek during culvert removal and construction of the roughened chute, the proposed action would result in improved year-round fish passage conditions for both adult and juvenile salmonids and native fishes, including UWR steelhead and UWR chinook salmon, within the Jackass Creek portion of the action area. As a result, long-term, beneficial effects to fish passage are expected along Jackass Creek. Placing large rock in a stream channel has the potential to create sub-surface flow due to the porosity. This could create a passage barrier at moderate and lower flows. This project will utilize methods that will reduce the risk of sub-surface flow by mixing of different sizes of material including fines and water compaction.

The effects of these activities on UWR chinook salmon and UWR steelhead and aquatic habitat would be limited by construction methods and approaches, included in the project design, that are intended to avoid or minimize impacts.

The proposed action would cause temporary impacts to UWR steelhead and UWR chinook salmon and their habitat, but would provide a long-term benefit by reducing local erosion, enhancing riparian overstory cover and re-establishing fish passage. The track hoe would be working directly in the isolated portion of the stream channel. A toe trench would be excavated in the stream and large boulders placed at the bottom of the new channel.

Because time is needed to construct the dams and install a diversion pipe, much of the preparation work will likely be done the day before dewatering and fish removal.

NOAA Fisheries expects the proposed action will create beneficial habitat conditions over the long term based on the current condition of the site. In the long term, hydraulic conditions will change within the channel, however, establishing fish passage and allowing access to additional spawning and rearing habitat. In the short term, a temporary increase in sediment entrainment and turbidity, temperature, and disturbance of riparian habitat is expected.

1.5.2 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." The action area has been defined as the streambed and streambank of Jackass Creek extending upstream 45 m to the edge of disturbance, and downstream approximately 150 m below the bridge to the bottom of the project. A wide variety of actions occur within the Upper Willamette River watershed, which includes the action area. NOAA Fisheries is not aware of any significant change in such non-Federal activities that are reasonably certain to occur. NOAA Fisheries assumes that future private and State actions will continue at similar intensities as in recent years. Future ODOT transportation projects are planned in the Upper Willamette River watershed. Each of these projects will be reviewed

through separate section 7 consultation processes and therefore are not considered cumulative effects.

1.6. Conclusion

NOAA Fisheries has determined that, based on the available information, the proposed action is not likely to jeopardize the continued existence of UWR steelhead or UWR chinook salmon. NOAA Fisheries used the best available scientific and commercial data to analyze the effects of the proposed action on the biological requirements of the species relative to the environmental baseline, together with cumulative effects.

NOAA Fisheries' conclusions are based on the following considerations: (1) Most of the proposed work will occur outside of the flowing waters of Jackass Creek (*i.e.*, in the dry); (2) in-water work will be completed between July 1st and October 15th when NOAA Fisheries expects presence of ESA-listed fish are low, minimizing the likelihood of UWR steelhead or UWR chinook salmon presence in the action area due to no flow, low flow, and/or warm water conditions; (3) any increases in sedimentation and turbidity in the project reach of the Jackass Creek will be short-term and minor in scale, and would not change or worsen existing conditions for stream substrate in the action area; (4) long-term, beneficial effects will result from the increasing the hydraulic opening under the bridge by removing the existing culvert and spanning Jackass Creek; (5) fish passage will be provided for both juvenile and adult salmonids; (6) stormwater will be routed to enable infiltration through existing vegetated ditches instead of directly from the bridge deck to the channel as the current bridge does; and (7) the proposed action is not likely to impair properly functioning habitat, appreciably reduce the functioning of already impaired habitat, or retard the long-term progress of impaired habitat toward proper functioning condition essential to long-term survival and recovery at the population ESU scale.

1.7 Reinitiation of Consultation

This concludes formal consultation on the Jackass Creek Bridge Replacement Project. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and if: (1) The amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion; or (4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation. A Federal court has vacated the rule designating critical habitat for the ESUs considered in this opinion, however, if critical habitat is redesignated before this action is fully implemented, the analysis will be relevant when determining whether a reinitiation of consultation will be necessary.

2. INCIDENTAL TAKE STATEMENT

The ESA at section 9 [16 USC 1538] prohibits take of endangered species. The prohibition of take is extended to threatened anadromous salmonids by section 4(d) rule [50 CFR 223.203]. Take is defined by the statute as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." [16 USC 1532(19)] Harm is defined by regulation as "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavior patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering." [50 CFR 222.102] Harass is defined as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering." [50 CFR 17.3] Incidental take is defined as "takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant." [50 CFR 402.02] The ESA at section 7(o)(2) removes the prohibition from any incidental taking that is in compliance with the terms and conditions specified in a section 7(b)(4) incidental take statement [16 USC 1536].

2.1 Amount or Extent of Take

NOAA Fisheries anticipates that the action covered by this Opinion is reasonably certain to result in incidental take of UWR steelhead and UWR chinook salmon because of harm from increased sediment levels, the potential for injuring and/or killing individual fish during the work area isolation, and delayed mortality due to handling during the fish salvage process. Effects of actions such as these are largely unquantifiable in the short term, and are not expected to be measurable as long-term harm to habitat features or by long-term changes to UWR steelhead and UWR chinook salmon populations. Therefore, even though NOAA Fisheries expects some low-level incidental take to occur due to the actions covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NOAA Fisheries to estimate a specific amount of incidental take to the species itself. In instances such as these, the NOAA Fisheries designates the expected level of take as "unquantifiable". Based on the information in the BA, NOAA Fisheries anticipates that an unquantifiable amount of incidental take is reasonably certain to occur as a result of the actions covered by this Opinion.

In addition, NOAA Fisheries expects that the possibility exists for handling UWR steelhead and UWR chinook salmon during the work isolation process, which will result in incidental take to individuals during the construction period. NOAA Fisheries anticipates that incidental take of up to 100 juvenile UWR steelhead or UWR chinook salmon, including injury of 95 and death of five individuals, could occur as a result of the fish salvage process. This take estimate is based on approximately 100 m^2 of stream habitat that will be dewatered during work area isolation. The extent of the take is limited to UWR steelhead and UWR chinook salmon within the action area. The extent of the take includes the streambed and streambank of Jackass Creek extending upstream of the bridge 45 m to the edge of disturbance, and downstream approximately 150 m below the bridge to the bottom of the project.

2.2 Reasonable and Prudent Measures

NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of UWR steelhead and UWR chinook salmon resulting from the action covered by this Opinion. The FHWA shall require measures that will:

1. Avoid or minimize the amount of incidental take from rock placement and stabilization activities on the streambank of Jackass Creek by requiring measures be taken to limit the duration and extent of rock placement in the action area, and to schedule such work when the fewest number of fish are expected to be present.

2. Avoid or minimize incidental take from general construction by excluding unauthorized permit actions and applying permit conditions that avoid or minimize adverse effects to riparian and aquatic systems.

3. Ensure effectiveness of implementation of the reasonable and prudent measures by requiring that all erosion control measures and plantings for site restoration, shall be monitored and evaluated both during and following construction.

2.3 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the FHWA must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To implement reasonable and prudent measure #1 (rock placement and streambank protection), the FHWA shall ensure that:

    a. Conservation goal. All actions intended for streambank protection will also provide the greatest degree of natural stream and floodplain function achievable through application of an integrated, ecological approach.
    b. Bioengineering Practices. Large wood will be included as an integral component of all streambank protection treatments. Avoid or minimize the use of rock, stone and similar materials.
        i. Large wood must be intact, hard, and undecayed to partly decaying with untrimmed root wads to provide functional refugia habitat for fish. Use of decayed or fragmented wood found laying on the ground or partially sunken in the ground is not acceptable. Large wood should be a minimum of 450 mm dbh.
        ii. Rock may be used for the following purposes and structures. The rock must be class 350 metric or larger, wherever feasible, but may not constrict the channel migration zone or impair natural stream flows into or out of secondary channels or riparian wetlands.

(1) As ballast to anchor or stabilize large woody debris components of a structural or biotechnical bank treatment.
(2) Boulder placement projects must rely on the size of boulder for stability, not on any artificial cabling or other devices..
(3) The downstream end of the chute will be keyed in with large enough boulders to anchor and stabilize the channel.
(4) To fill scour holes, as necessary to protect the integrity of the project, if the rock is limited to the depth of the scour hole and does not extend above the channel bed.
(5) Rock must be individually placed without end dumping.

c. After completion of the project, the existing channel should be re-watered in a way that will not significantly impact water quality or cause fish stranding.
   i. The diversion pipe shall be maintained in place while slowly dismantling the upper and lower dams. This will allow the new channel to slowly water-up, while still maintaining flow in the lower channel below the project. Because the area above the upper dam has temporarily expanded usable habitat for fish, slowly ramping the water will allow fish to get back into the actual low-flow channel.
   ii. An ODOT or ODFW biologist shall be on site to monitor for fish stranding during this process.

d. Any pump used for dewatering or diverting authorized under this Opinion must have a fish screen installed, operated and maintained in accordance to NOAA Fisheries' fish screen criteria.

2. To implement reasonable and prudent measure #2 (general conditions for construction, operation and maintenance), the FHWA shall ensure that:

a. Timing of in-water work. In-water work will be completed between June 15th and October 15th during a period of time when presence of ESA-listed fish are low. Downstream fish passage will be maintained throughout the project, however, the stream will likely have nearly no flow during construction
b. Cessation of work. Project operations will cease under high flow conditions that may result in inundation of the project area, except for efforts to avoid or minimize resource damage.
c. Fish screens. All water intakes used for a project, including pumps used to isolate an in-water work area, will have a fish screen installed, operated and maintained according to NOAA Fisheries' fish screen criteria.[1]
d. Fish passage. Passage will be provided for any adult or juvenile salmonid species present in the project area during construction, and after construction for the life

[1] National Marine Fisheries Service, *Juvenile Fish Screen Criteria* (revised February 16, 1995) and *Addendum: Juvenile Fish Screen Criteria for Pump Intakes* (May 9, 1996) (guidelines and criteria for migrant fish passage facilities, and new pump intakes and existing inadequate pump intake screens) (http://www.nwr.noaa.gov/1hydrop/hydroweb/ferc.htm).

of the project. Upstream passage is not required during construction if it did not previously exist.

e. Pollution and Erosion Control Plan. A Pollution and Erosion Control Plan will be prepared and carried out to prevent pollution related to construction operations. The plan must be available for inspection on request by FHWA or NOAA Fisheries.

i. Plan Contents. The Pollution and Erosion Control Plan must contain the pertinent elements listed below, and meet requirements of all applicable laws and regulations.

(1) Practices to prevent erosion and sedimentation associated with access roads, stream crossings, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations and staging areas.

(2) Practices to confine, remove and dispose of excess concrete, cement and other mortars or bonding agents, including measures for washout facilities.

(3) A description of any hazardous products or materials that will be used for the project, including procedures for inventory, storage, handling, and monitoring.

(4) A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures that will be available on the site, proposed methods for disposal of spilled materials, and employee training for spill containment.

(5) Practices to prevent construction debris from dropping into any stream or waterbody, and to remove any material that does drop with a minimum disturbance to the streambed and water quality.

ii. Inspection of erosion controls. During construction, all erosion controls must be inspected daily during the rainy season and weekly during the dry season to ensure they are working adequately.[2]

(1) If inspection shows that the erosion controls are ineffective, work crews must be mobilized immediately to make repairs, install replacements, or install additional controls as necessary.

(2) Sediment must be removed from erosion controls once it has reached 1/3 of the exposed height of the control.

f. Construction discharge water. All discharge water created by construction (*e.g.*, concrete washout, pumping for work area isolation, vehicle wash water) will be treated as follows.

i. Water quality. Facilities must be designed, built and maintained to collect and treat all construction discharge water using the best available technology applicable to site conditions. The treatment must remove

[2] "Working adequately" means no turbidity plumes are evident during any part of the year.

debris, nutrients, sediment, petroleum hydrocarbons, metals and other pollutants likely to be present.

ii. Discharge velocity. If construction discharge water is released using an outfall or diffuser port, velocities must not exceed 4-feet per second.

iii. Spawning areas, marine submerged vegetation. No construction discharge water may be released within 300 feet upstream of active spawning areas or areas with marine submerged vegetation.

g. Piling installation. Install temporary and permanent pilings as follows.

i. Minimize the number and diameter of pilings, as appropriate, without reducing structural integrity.

ii. Repairs, upgrades, and replacement of existing pilings consistent with these terms and conditions are allowed.

iii. In addition to repairs, upgrades, and replacements of existing pilings, up to five single pilings or one dolphin consisting of three to five pilings may be added to an existing facility per in-water construction period.

iv. Drive each piling as follows to minimize the use of force and resulting sound pressure.

(1) Hollow steel pilings greater than 24 inches in diameter, and H-piles larger than designation HP24, are not authorized under this Opinion.

(2) When impact drivers will be used to install a pile, use the smallest driver and the minimum force necessary to complete the job. Use a drop hammer or a hydraulic impact hammer, whenever feasible and set the drop height to the minimum necessary to drive the piling.

(3) When using an impact hammer to drive or proof steel piles, one of the following sound attenuation devices will be used to reduce sound pressure levels by 20 decibels.

(a) Place a block of wood or other sound dampening material between the hammer and the piling being driven.

(b) If currents are 1.7 miles per hour or less, surround the piling being driven by an unconfined bubble curtain that will distribute small air bubbles around 100% of the piling perimeter for the full depth of the water column.[3]

(c) If currents greater than 1.7 miles per hour, surround the piling being driven by a confined bubble curtain (*e.g.*, a bubble ring surrounded by a fabric or metal sleeve) that

[3] For guidance on how to deploy an effective, economical bubble curtain, see, Longmuir, C. and T. Lively, *Bubble Curtain Systems for Use During Marine Pile Driving*, Fraser River Pile and Dredge LTD, 1830 River Drive, New Westminster, British Columbia, V3M 2A8, Canada. Recommended components include a high volume air compressor that can supply more than 100 pounds per square inch at 150 cubic feet per minute to a distribution manifold with 1/16 inch diameter air release holes spaced every 3/4 inch along its length. An additional distribution manifold is needed for each 35 feet of water depth.

will distribute air bubbles around 100% of the piling perimeter for the full depth of the water column.

(d) Other sound attenuation devices as approved in writing by NOAA Fisheries.

v. Piling removal. If a temporary or permanent piling will be removed, the following conditions apply.

(1) Dislodge the piling with a vibratory hammer.

(2) Once loose, place the piling onto the construction barge or other appropriate dry storage site.

(3) If a treated wood piling breaks during removal, either remove the stump by breaking or cutting 3 feet below the sediment surface or push the stump in to that depth, then cover it with a cap of clean substrate appropriate for the site.

(4) Fill the holes left by each piling with clean, native sediments, whenever feasible.

h. Preconstruction activity. Before significant[4] alteration of the project area, the following actions must be completed.

i. Marking. Flag the boundaries of clearing limits associated with site access and construction to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.

ii. Emergency erosion controls. Ensure that the following materials for emergency erosion control are onsite.

(1) A supply of sediment control materials (*e.g.*, silt fence, straw bales[5]).

(2) An oil-absorbing, floating boom whenever surface water is present.

iii. Temporary erosion controls. All temporary erosion controls must be in-place and appropriately installed downslope of project activity within the riparian area until site restoration is complete.

i. Temporary access roads.

i. Existing ways. Existing roadways or travel paths must be used whenever possible, unless construction of a new way would result in less habitat take.

ii. Steep slopes. Temporary roads built mid-slope or on slopes steeper than 30% are not authorized.

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[4] "Significant" means an effect can be meaningfully measured, detected or evaluated.

[5] When available, certified weed-free straw or hay bales must be used to prevent introduction of noxious weeds.

iii. Minimizing soil disturbance and compaction. When a new temporary road is necessary within 150 feet[6] of a stream, water body or wetland, soil disturbance and compaction must be minimized by clearing vegetation to ground level and placing clean gravel over geotextile fabric, unless otherwise approved in writing by NOAA Fisheries.

iv. Temporary stream crossings.

(1) The number of temporary stream crossings must be minimized.

(2) Temporary road crossings must be designed as follows.

(a) A survey must identify and map any potential spawning habitat within 300 feet downstream of a proposed crossing.

(b) No stream crossing may occur at known or suspected spawning areas, or within 300 feet upstream of such areas if spawning areas may be affected.

(c) The crossing design must provide for foreseeable risks (*e.g.*, flooding and associated bedload and debris) to prevent the diversion of streamflow out of the channel and down the road if the crossing fails.

(d) Vehicles and machinery must cross riparian areas and streams at right angles to the main channel wherever possible.

v. Obliteration. When the project is completed, all temporary access roads must be obliterated, the soil must be stabilized, and the site must be revegetated. Temporary roads in wet or flooded areas must be abandoned and restored as necessary by the end of the in-water work period.

j. Heavy Equipment. Use of heavy equipment will be restricted as follows.

i. Choice of equipment. When heavy equipment must be used, the equipment selected must have the least adverse effects on the environment (*e.g.*, minimally-sized, rubber-tired).

ii. Vehicle staging. Vehicles must be fueled, operated, maintained and stored as follows.

(1) Vehicle staging, cleaning, maintenance, refueling, and fuel storage must take place in a vehicle staging area placed 150 feet or more from any stream, waterbody or wetland.

(2) All vehicles operated within 150 feet of any stream, water body or wetland must be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected must be repaired in the vehicle staging area before the vehicle resumes operation.

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[6] Distances from a stream or water body are measured horizontally from, and perpendicular to, the bankfull elevation, the edge of the channel migration zone, or the edge of any associated wetland, whichever is greater. "Channel migration zone" means the area defined by the lateral extent of likely movement along a stream reach as shown by evidence of active stream channel movement over the past 100 years, *e.g.*, alluvial fans or floodplains formed where the channel gradient decreases, the valley abruptly widens, or at the confluence of larger streams.

Inspections must be documented in a record that is available for review on request by FHWA or NOAA Fisheries.

(3) All equipment operated instream must be cleaned before beginning operations below the bankfull elevation to remove all external oil, grease, dirt, and mud.

iii. Stationary power equipment. Stationary power equipment (*e.g.*, generators, cranes) operated within 150 feet of any stream, water body or wetland must be diapered to prevent leaks, unless otherwise approved in writing by NOAA Fisheries.

k. Site preparation. Native materials will be conserved for site restoration.

i. If possible, native materials must be left where they are found.

ii. Materials that are moved, damaged or destroyed must be replaced with a functional equivalent during site restoration.

iii. Any large wood[7], native vegetation, weed-free topsoil, and native channel material displaced by construction must be stockpiled for use during site restoration.

l. Isolation of in-water work area. If adult or juvenile fish are reasonably certain to be present, the work area will be well isolated from the active flowing stream using inflatable bags, sandbags, sheet pilings, or similar materials. The work area will also be isolated if in-water work may occur within 300 feet upstream of spawning habitats. Water management plans must be approved in writing by NOAA Fisheries prior to the start of isolation.

m. Capture and release. Before and intermittently during pumping to isolate an in-water work area, an attempt must be made to capture and release fish from the isolated area using trapping, seining, electrofishing, or other methods as are prudent to minimize risk of injury.

i. A fishery biologist experienced with work area isolation and competent to ensure the safe handling of all ESA-listed fish must conduct or supervise the entire capture and release operation.

ii. If electrofishing equipment is used to capture fish, the capture team must comply with NOAA Fisheries' electrofishing guidelines.[8]

iii. The capture team must handle ESA-listed fish with extreme care, keeping fish in water to the maximum extent possible during seining and transfer procedures to prevent the added stress of out-of-water handling.

iv. Captured fish must be released as near as possible to capture sites.

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[7] For purposes of this Opinion only, "large wood" means a tree, log, or rootwad big enough to dissipate stream energy associated with high flows, capture bedload, stabilize streambanks, influence channel characteristics, and otherwise support aquatic habitat function, given the slope and bankfull width of the stream in which the wood occurs. See, Oregon Department of Forestry and Oregon Department of Fish and Wildlife, *A Guide to Placing Large Wood in Streams*, May 1995 (www.odf.state.or.us/FP/RefLibrary/LargeWoodPlacemntGuide5-95.doc).

[8] National Marine Fisheries Service, *Backpack Electrofishing Guidelines* (December 1998) (http://www.nwr.noaa.gov/1salmon/salmesa/pubs/electrog.pdf).

v. ESA-listed fish may not be transferred to anyone except NOAA Fisheries personnel, unless otherwise approved in writing by NOAA Fisheries.

vi. Other Federal, state, and local permits necessary to conduct the capture and release activity must be obtained.

vii. NOAA Fisheries or its designated representative must be allowed to accompany the capture team during the capture and release activity, and must be allowed to inspect the team's capture and release records and facilities.

n. Earthwork. Earthwork (including drilling, excavation, dredging, filling and compacting) will be completed as quickly as possible.

i. Site stabilization. All disturbed areas must be stabilized, including obliteration of temporary roads, within 12 hours of any break in work unless construction will resume work within 7 days between June 1 and September 30, or within 2 days between October 1 and May 31.

ii. Source of materials. Boulders, rock, woody materials and other natural construction materials used for the project must be obtained outside the riparian area.

o. Stormwater management. Prepare and carry out a stormwater management plan for any project that will produce a new impervious surface or a land cover conversion that slows the entry of water into the soil. The plan must be available for inspection on request by Corps or NOAA Fisheries.

i. Plan contents. The goal is to avoid and minimize adverse effects due to the quantity and quality of stormwater runoff for the life of the project by maintaining or restoring natural runoff conditions. The plan will meet the following criteria and contain the pertinent elements listed below, and meet requirements of all applicable laws and regulations.

(1) A system of management practices and, if necessary, structural facilities, designed to complete the following functions.

(a) Minimize, disperse and infiltrate stormwater runoff onsite using sheet flow across permeable vegetated areas to the maximum extent possible without causing flooding, erosion impacts, or long-term adverse effects to groundwater.

(b) Pretreat stormwater from pollution generating surfaces, including bridge decks, before infiltration or discharge into a freshwater system, as necessary to minimize any nonpoint source pollutant (*e.g.*, debris, sediment, nutrients, petroleum hydrocarbons, metals) likely to be present in the volume of runoff predicted from a 6-month, 24-hour storm.[9]

[9] A 6-month, 24-hour storm may be assumed to be 72% of the 2-year, 24-hour amount. See, Washington State Department of Ecology (2001), Appendix I-B-1.

(c) Ensure that the duration of post project discharge matches the pre-developed discharge rates from 50% of the 2-year peak flow up to the 50-year peak flow.

(2) For projects that require engineered facilities to meet stormwater requirements, use a continuous rainfall/runoff model, if available for the project area, to calculate stormwater facility water quality and flow control rates.

(3) Use permeable pavements for load-bearing surfaces, including multiple-use trails, to the maximum extent feasible based on soil, slope, and traffic conditions.

(4) Install structural facilities outside wetlands or the riparian buffer area[10] whenever feasible, otherwise, provide compensatory mitigation to offset any long-term adverse effects.

(5) Document completion of the following activities according to a regular schedule for the operation, inspection and maintenance of all structural facilities and conveyance systems, in a log available for inspection on request by the Corps and NOAA Fisheries.

(a) Inspect and clean each facility as necessary to ensure that the design capacity is not exceeded, heavy sediment discharges are prevented, and whether improvements in operation and maintenance are needed.

(b) Promptly repair any deterioration threatening the effectiveness of any facility.

(c) Post and maintain a warning sign on or next to any storm drain inlet that says, as appropriate for the receiving water, 'Dump No Waste - Drains to Ground Water, Streams, or Lakes.'

(d) Only dispose of sediment and liquid from any catch basin in an approved facility.

ii. Runoffs/discharge into a freshwater system. When stormwater runoff will be discharged directly into fresh surface water or a wetland, or indirectly through a conveyance system, the following requirements apply.

(1) Maintain natural drainage patterns and, whenever possible, ensure that discharges from the project site occur at the natural location.

[10] For purposes of this Opinion only, 'riparian buffer area' means land: (1) Within 150 feet of any natural water occupied by listed salmonids during any part of the year or designated as critical habitat; (2) within 100 feet of any natural water within 1/4 mile upstream of areas occupied by listed salmonids or designated as critical habitat and that is physically connected by an above-ground channel system such that water, sediment, or woody material delivered to such waters will eventually be delivered to water occupied by listed salmon or designated as critical habitat; and (3) within 50 feet of any natural water upstream of areas occupied by listed salmonids or designated as critical habitat and that is physically connected by an above-ground channel system such that water, sediment, or woody material delivered to such waters will eventually be delivered to water occupied by listed salmon or designated as critical habitat. 'Natural water' means all perennial or seasonal waters except water conveyance systems that are artificially constructed and actively maintained for irrigation.

(2) Use a conveyance system comprised entirely of manufactured elements (*e.g.*, pipes, ditches, outfall protection) that extends to the ordinary high water line of the receiving water.

(3) Stabilize any erodible elements of this system as necessary to prevent erosion.

(4) Do not divert surface water from, or increase discharge to, an existing wetland if that will cause a significant adverse effect to wetland hydrology, soils or vegetation.

(5) The velocity of discharge water released from an outfall or diffuser port may not exceed 4 feet per second, and the maximum size of any aperture may not exceed one inch.

p. Site restoration. All streambanks, soils and vegetation disturbed by the project are cleaned up and restored as follows.

i. Restoration goal. The goal of site restoration is renewal of habitat access, water quality, production of habitat elements (such as large woody debris), channel conditions, flows, watershed conditions and other ecosystem processes that form and maintain productive fish habitats.

ii. Streambank shaping. Damaged streambanks must be restored to a natural slope, pattern and profile suitable for establishment of permanent woody vegetation.

iii. Revegetation. Areas requiring revegetation must be replanted before the first April 15 following construction with a diverse assemblage of species that are native to the project area or region, including grasses, forbs, shrubs and trees.

iv. Pesticides. No pesticide application is allowed, although mechanical or other methods may be used to control weeds and unwanted vegetation.

v. Fertilizer. No surface application of fertilizer may occur within 50-feet of any stream channel.

vi. Fencing. Fencing must be installed as necessary to prevent access to revegetated sites by livestock or unauthorized persons.

q. Long-term adverse effects. Long-term adverse effects will be avoided or offset after taking all appropriate steps to avoid or minimize short-term adverse effects.

i. Actions of concern. The following actions require compensation for long-term adverse effects.

(1) Construction of new impervious surfaces inside the riparian buffer area.[11]

[11] For purposes of this Opinion only, "riparian buffer area" means land: (1)Within 150 feet of any natural water occupied by listed salmonids during any part of the year or designated as critical habitat; (2) within 100-feet of any natural water within 1/4 mile upstream of areas occupied by listed salmonids or designated as critical habitat and that is physically connected by an above-ground channel system such that water, sediment, or woody material delivered to such waters will eventually be delivered to water occupied by listed salmon or designated as critical habitat; and (3) within 50-feet of any natural water upstream of areas occupied by listed salmonids or designated as critical habitat and that is physically connected by an above-ground channel system such that water, sediment, or woody material delivered to such waters will eventually be delivered to water occupied by listed salmon or designated as critical habitat. "Natural water"

(2) Maintenance dredging in water closer than 50 feet from shore or in waters less than 20 feet deep.[12]
(3) Other activities that prevent development of properly functioning condition of natural habitat processes.

ii. Design review. The FHWA must review and approve designs to avoid or offset long-term adverse effects by applying the following considerations.
(1) Use of an ecosystem approach
(2) Habitat requirements of the affected species
(3) Productive capacity of the proposed construction and compensation site(s)
(4) Timing of the construction and compensation actions
(5) Length of time necessary to achieve full functionality
(6) Likelihood of success

iii. Project evaluation. The FHWA must evaluate compensation project success using quantitative criteria established for the project.

iv. Terms and conditions. Action to minimize long-term adverse effects that requires a FHWA permit must also meet all applicable terms and conditions for this Opinion, or complete a separate consultation.

3. To implement reasonable and prudent measure #3 (monitoring and reporting), the FHWA shall ensure that:

a. Within 120 days of completing the project, the FHWA shall ensure submital of a monitoring report to NOAA Fisheries describing the FHWA's success meeting their permit conditions. This report will consist of the following information.

i. Project identification.
(1) Project name;
(2) starting and ending dates of work completed for this project;
(3) the FHWA contact person; and,

ii. Isolation of in-water work area. All projects involving isolation of in-water work areas must include a report of any seine and release activity including:
(1) The name and address of the supervisory fish biologist;
(2) methods used to isolate the work area and minimize disturbances to fish species;
(3) stream conditions prior to and following placement and removal of barriers;
(4) the means of fish removal;
(5) the number of fish removed by species;

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means all perennial or seasonal waters except water conveyance systems that are artificially constructed and actively maintained for irrigation.

[12] Depth in tidal waters is measured from mean lower low water (MLLW).

(6) the location and condition of all fish released; and
(7) any incidence of observed injury or mortality.

iii. Pollution and erosion control. A summary of all pollution and erosion control inspection reports, including descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials.

iv. Site restoration. Documentation of the following conditions:
(1) Finished grade slopes and elevations.
(2) Log and rock structure elevations, orientation, and anchoring, if any.
(3) Any changes in planting composition and density.
(4) A plan to inspect and, if necessary, replace failed plantings and structures, including the compensatory mitigation site.
(5) During the monitoring period the stream channel should be maintained to remedy problems associated with fish passage and stability. This includes stabilizing deflection points, replacement plantings, and replacing structures vital to fish passage.

v. Photographic documentation of environmental conditions at the project site before, during and after project completion.
(1) Photographs will include general project location views and close-ups showing details of the project area and project, including pre- and post-construction.
(2) Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.
(3) Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

vi. Monitoring. On an annual basis, for 5 years after completing the project, the FHWA shall ensure submital of a monitoring report to NOAA Fisheries describing the FHWA's success in meeting their habitat restoration goals of any riparian plantings. This report will consist of the following information:
(1) Project identification.
(a) Project name,
(b) starting and ending dates of work completed for this project, and
(c) the FHWA contact person.
(2) Riparian restoration. Documentation of the following conditions:
(a) Any changes in planting composition and density.
(b) A plan to inspect and, if necessary, replace failed plantings and structures.

(3) Hydrology monitoring of the new channel. Documentation of the following elements:

(a) Water velocity profiles throughout the channel during low, medium and migratory flows.

(b) Observations of juvenile and adult fish usage and passage.

(c) Survey of the channel to determine whether goals were met on design and if improvements can be made to enhance fish passage.

vii. Monitoring reports will be submitted to:

NOAA Fisheries
Oregon Habitat Branch
Attn: **2003/00566**
525 NE Oregon Street, Suite 500
Portland, OR 97232-2778

3. MAGNUSON-STEVENS ACT

3.1 Background

The objective of the essential fish habitat (EFH) consultation is to determine whether the proposed actions may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

3.2 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50 CFR 600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;

- NOAA Fisheries shall provide conservation recommendations for any Federal or state activity that may adversely affect EFH;

- Federal agencies shall within 30 days after receiving conservation recommendations from NOAA Fisheries provide a detailed response in writing to NOAA Fisheries regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NOAA Fisheries is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.3 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for Federally-managed fisheries within the waters of Washington, Oregon, and California. Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years)(PFMC 1999).

Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of the potential adverse effects to these species' EFH from the proposed action is based on this information.

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O. gorbuscha*)(PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14

to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

3.4 Proposed Action

The proposed action is detailed above in Part 1.2. The action area for this consultation includes the streambed and streambank of Jackass Creek extending upstream 45 m to the edge of disturbance, and downstream approximately 150 m below the bridge to the bottom of the project. This area has been designated as EFH for chinook salmon.

3.5 Effects of Proposed Action

NOAA Fisheries believes the implementation of the bridge replacement project is likely to adversely affect EFH for chinook salmon. Information submitted by the FHWA in its request for consultation and additional information provided by ODFW is sufficient for NOAA Fisheries to conclude that the effects of the proposed action are transient, local, and of low intensity and are likely to adversely EFH in the short term, however over the long term provide a larger hydraulic opening under the bridge, riparian growth, and more adequate treatment of stormwater will benefit UWR chinook salmon. NOAA Fisheries also believes that replacement of the bridge will provide a beneficial effect and the conservation measures proposed as an integral part of the action would avoid, minimize, or otherwise offset potential adverse impacts to designated EFH.

3.6 Conclusion

NOAA Fisheries believes that implementation of the bridge replacement project in Jackass Creek is likely to adversely affect designated EFH for chinook salmon.

3.7 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NOAA Fisheries is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project in the BA by the FHWA, all of the Reasonable and Prudent Measures and the Terms and Conditions contained in Sections 2.3 (Numbers 1 and 2) are applicable to EFH. Therefore, NOAA Fisheries incorporates each of those measures here as EFH conservation recommendations.

3.8 Statutory Response Requirement

Please note that the MSA (section 305(b)) and 50 CFR 600.920(j) requires the Federal agency to provide a written response to NOAA Fisheries after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation

recommendation from NOAA Fisheries, the agency must explain its reasons for not following the recommendation.

3.9 Supplemental Consultation

The FHWA must reinitiate EFH consultation with NOAA Fisheries if either the action is substantially revised or new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920).

4. LITERATURE CITED

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